

MULTILUMEN CATHETER, PARTICULARLY FOR HEMODIALYSIS

summary
The invention relates to a device called a multilumen catheter, used for the circulation of a least one fluid between a cavity of a patient's body and a means for circulating this fluid such as a fluid perfusing and/or extracting means.

The invention relates more particularly, though not exclusively, to a catheter for hemodialysis.

intro
The term multilumen catheter designates a catheter comprising at least two inner lumens defined by a wall, each of which is intended for guiding at least one fluid.

A catheter of this type also comprises two opposite ends, one of which is called a distal end since it is specifically intended to be placed in a cavity of a patient's body in order to deliver and/or sample the fluid to or from it through at least one channel, the other being called a proximal end, since it is specifically intended to be connected to a fluid circulating means such as a fluid perfusing and/or extracting means.

With the known catheters, the risk of clogging substances being deposited on the surfaces of the perfusing and/or extracting channels is substantial.

One object of the invention is to obtain a catheter having a risk of obstruction by clogging that is substantially reduced relative to the known catheters.

Summary of the Invention
To this end, the subject of the invention is a catheter of the above-mentioned type, this catheter being characterized in that in order to constitute its distal end, it comprises, beyond a so-called dividing point located at a predetermined distance from its proximal end, at least two distinct elongated end portions which:

- in at least one rest position of the catheter, extend substantially parallel to the longitudinal axis of this catheter, each over a predetermined length measurable between a free end and the dividing point,
- are each made of flexible material so as to be

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flexible at least under the effect of a lateral action due to the displacement of a fluid,

- contain at least one segment of at least one of the lumens and have at least one channel for delivering and/or sampling the fluid.

The invention will be clearly understood by reading the following description given as a non-limiting example in reference to the appended ~~drawing~~ ^{Brief Description of the Drawing} ~~which represents~~ ^{with} a

side view of one embodiment of a catheter according to the invention. ^{Detailed Description of the Preferred}

The drawing shows an elongated device called a catheter 1 comprising:

- at least two inner lumens 2, 3, defined by a wall 2A, 3A, each of which is intended for guiding at least one fluid 3,

- two opposite ends 5, 6, one of which 5 is called a distal end, since it is specifically intended to be placed inside a cavity of a patient's body (not represented) in order to deliver and/or sample the fluid 4 to or from it through at least one channel 7, 8, the other end 6 being called the proximal end, since it is specifically intended to be connected to a means 9 for circulating a fluid 4, such as a fluid perfusing and/or extracting means.

The fluid 4 is represented by arrows 4.

As shown, the channels 7, 8 are comprised of perforations disposed in the wall of the catheter that defines each of the lumens 2, 3.

These channels allow either the delivery into the area surrounding the catheter of a fluid contained in a lumen of this catheter, or the entry into a lumen of this catheter of a surrounding fluid.

For example, at least one of the lumens is intended for perfusing a fluid and at least one other lumen is intended for extracting fluid.

Also as shown, the lumens 2, 3 for circulating the fluid 4 are for example comprised of juxtaposed lumens,

but this is not limiting for the invention.

The dimensions and proportions of the catheter represented are not limiting for the invention.

At its proximal end 6, the catheter has elements 10,
5 11 for connecting each of the lumens 2, 3 it comprises to
the means 9 for circulating fluid 4.

As neither the circulating means 9 nor the elements 10, 11 for connecting to this means 9 are subjects of the invention, these elements 10, 11 and the means 9 are not represented in detail.

It is at the distal end 5 that the catheter of the invention is noteworthy.

In effect, in order to constitute its distal end, the catheter comprises, beyond a so-called dividing point 12 located at a predetermined distance D1 from its proximal end 6, at least two distinct elongated end portions 13, 14 which:

- in at least one rest position of the catheter, extend substantially parallel to the longitudinal axis of this catheter, each over a predetermined length L1, L2 measurable between a free end 13A, 14A, and the dividing point 12,

- are each made of flexible material so as to be flexible at least under the effect of a lateral action due to the displacement of a fluid,

- contain at least one segment of at least one of the lumens 2, 3 and has at least one channel 7, 8 for delivering and/or sampling the fluid.

These technical characteristics, when the distal end
30 of the catheter is placed on the axis of a fluid flow
such as a bodily fluid flow, allow the end portions, due
to their flexibility and independence, to act like a sail
set parallel to the wind and thus are practically not
subject to obstruction.

35 In effect, the agitation and flexion of these end
portions considerably reduces the risk of clogging
substances being deposited on the surfaces of the

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perfusing and/or extracting channels with which these end portions are equipped.

5 According to another noteworthy characteristic, the end portions have different lengths L1, L2, and the channels with which these end portions are equipped are disposed so that each of them emerges at a different level of the catheter.

10 According to another characteristic of the invention, the channels with which the end portions are equipped are disposed in a group on each end portion, and these groups are disposed at different levels of the catheter.

1 CLAIM:

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